Raining Data Corporation

INSTALLATION GUIDE **April 02, 2002**

mvEnterprise
Release 4.1.0 on AIX

This document refers to products that are either currently released or are yet to be released. Please consult your Raining Data Representative for more information.

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1. Installation Instructions

1.1 Installation Overview

This section provides step-by-step instructions for installing mvEnterprise Release 4.1 on AIX.

IMPORTANT: Contact Raining Data Customer Support at 949-261-1875 or your local office for any questions concerning user-written assembler modes. If you have any user-written assembler modes and/or third-party packages, they must be recompiled and reinstalled after the installation procedure is complete.

1.2 Notation Conventions

This document observes the following written conventions:

Notation	Explanation	Example
Alternate font	Alternate font designates commands, and serves to identify various forms of syntax, or designates menus, screens, fields and any associated items.	Attempting to initiate a 17th process would display the message: All licensed ports are in use The UNIX file path is /usr/config/config.pick
Alternate font bold	Designates input text. May be upper or lower case, depending on typed input requirements.	After selecting the tape device, type: **T-REW**
Italic font	Designates book titles. Designates terms being emphasized.	Refer to the *mvEnterprise User Reference Manual*. *If this is a new installation*, proceed to Step 7.
Italic Helvetica bold	Indicates terms being defined.	***.cshrc:*** Script executed upon entry to a C shell.
BOLD CAPS: and body text	Indicates important items requiring special, visual emphasis. **CAUTION.** Means *remember*. Indicates something you should keep in mind while you follow a set of instructions. **IMPORTANT:** Means *significant*. Indicates additional information you should know before proceeding through instructions. **NOTE:** Means *hint.* Indicates helpful information or a short cut that could save time or trouble. **WARNING:** Means *halt*. Indi-cates important information to read before proceeding.	**CAUTION:** Altering the default number of the virtual memory buffers for a line increases the true memory requirements of the system. **IMPORTANT:** A kill -5 HAS THE SAME EFFECT ON mvEnterprise AS A kill -9. **NOTE:** These devices *must* be non-rewind devices. **WARNING:** A kill -9 should not be used to remove a mvEnterprise process unless recommended by Raining Data Customer Support.

1.3 Additional Documentation

Current information on mvEnterprise is available on the Raining Data Web site at www.rainingdata.com.

The following documentation supports mvEnterprise Release 4.1:

- *mvEnterprise User Reference Manual* (Part Number 84-00014A00).
- *Assembly Language Manual* (Part Number 05627-001).

To order any of the above titles, or to inquire about other manuals published by Raining Data, contact Order Administration at the following address:

Raining Data Corporation
17500 Cartwright
Irvine, CA 92614
Attention: Order Administration

Fax:	949-474-6940
Phone:	949-442-4400
E-mail	Orders@rainingdata.com

If you have any requests, comments, corrections or questions regarding the *content* of mvEnterprise documentation, contact the Technical Publications Department at Raining Data through the above address or at documentation@rainingdata.com.

1.4 mvEnterprise PICK License Management

The mvEnterprise implementation requires Raining Data licensing agreement with Raining Data. The total number of ports allowed on an mvEnterprise virtual machine is governed by this licensing agreement. Questions concerning the impact this licensing agreement has on mvEnterprise installations can be directed to Raining Data Customer Support in Irvine at 949-261-1875 or call your local office.

In order to control the number of terminals running mvEnterprise, a security system has been added. This ensures that a hardware machine is properly configured and that the appropriate license is in place with Raining Data.

Before installing mvEnterprise, it is necessary to acquire a master mvEnterprise configuration control code from Raining Data Customer Support. This record is unique to each machine and contains the maximum number of mvEnterprise processes (excluding Phantoms) that are licensed and allowed to run at one time.

mvEnterprise/ODA requires a separate master control code and contains the maximum number of mvEnterprise/ODA server processes that are licensed and allowed to run at one time.

The installation program prompts for the codes and create the necessary file on a new installation. The configuration control file contains one or two lines composed of 13 characters that make up a control code. The first line contains the mvEnterprise master control code. The second line contains the (optional) mvEnterprise/ODA master control code, if applicable. The UNIX file path is:

/usr/config/config.pick

After mvEnterprise is installed, the system is able to run the specified number of real processes on any ports and on any logical mvEnterprise machine.

For example, if a machine is licensed for 256 ports and has 240 processes running on a production machine, 16 ports would be left to run on a development machine. Attempting to initiate a 17th process would display the message:

All licensed ports are in use

This message is also logged in the pick_log file which is located in the /usr/stat directory. A process can then be dropped from any port on any machine to create a free process. There is no preset allocation of ports to logical machines and no limit to the number of logical machines involved. The only restriction is the total number of active mvEnterprise processes.

1.5 Before You Install

1. Read through all sections of this installation guide and the release notes carefully before proceeding. If you have any questions or problems, call Raining Data Customer Support in Irvine at 949-261-1875 or call your local office.

   *If this is a new installation***,** proceed to Step 7.

   If this is an upgrade to an existing installation, proceed to Step 2.

2. Ensure that all users are logged off and that phantoms and printers are inactive.

3. If you are performing a complete database save and restore, examine your file sizing and perform any necessary reallocations at this time. Inappropriately allocated files reduce performance and reduce database integrity under fault conditions.

4. *Remove* any EXEC command from the GLOBAL-LOGON PROC in the LIBRARY account.

5. If performing a complete database save and restore, execute the base save and any account save threads.

6. Perform a SHUTDOWN from mvEnterprise to shut down all processes. (SHUTDOWN is the recommended procedure for bringing mvEnterprise down.)

   Proceed to "Installation Instructions."

7. For a new installation, it is necessary to acquire an mvEnterprise configuration control code from Raining Data Customer Support at the number listed above. This code is unique to your machine and contains the maximum number of mvEnterprise processes (excluding Phantoms) for which you are licensed and authorized to run at one time. Without this code, the installation cannot be completed.

8. Configure the System environment for mvEnterprise. Refer to Section 2 "Configuring The System for mvEnterprise on AIX". This consists of a number of steps:

- Getting Started. This sets up process resource limits.
- Configure Tape Devices for mvEnterprise.
- Configure Disks for mvEnterprise.
- Configure the System to use Ethertape.

NOTE: It may be necessary to reboot the system for certain system configuration changes to take effect.

9. The following directories are created during the install process:

   /VERSION

   /usr/config

   /usr/stat

1.6 Installation Instructions

1. To log on, type:

   root

   This installation procedure *must* be performed while logged on as root. Once installed, mvEnterprise may be initiated from any UNIX login.

NOTE: Make sure root and all UNIX logins that have access to mvEnterprise have the soft file size set to unlimited. Please refer to Section 2.1

2. Insert the mvEnterprise Release 4.1 release tape in the appropriate tape drive.

3. If this is a new installation, build the base mvEnterprise directory. For example:

   cd /
   mkdir production

4. Change directories to the mvEnterprise directory.

   cd /production

5. Load the UNIX tar section by entering the command:

   tar -xvpf tape_device_name

   where *tape_device_name* represents the tape drive from which mvEnterprise is being loaded. For example:

   /dev/rmt0.1

   Using this command installs the following programs:

consumer	Transaction Logger consumer program.
install	mvEnterprise installation program.
logger	Transaction Logger raw device configuration.
perror	Convert UNIX error numbers to text.
pick	mvEnterprise monitor program.
picksync	mvEnterprise disk flushing program.
pickoda	mvEnterprise ODA monitor program.

pick.lpd	Line printer driver program.
Pick.lpi	Line printer driver with job close abilities.
pickctrl	Install utility program.
preadchr	mvEnterprise/UNIX transfer utility program.
pwritechr	mvEnterprise/UNIX transfer utility program.
seqpick	System errors transfer program.
sweeper	Transaction Logger sweeper program.
mve_tel	mvEnterprise Telnet Server program.
mve_tel7024. ports_sample.	mvEnterprise Telnet Server sample ports file.
mve_tel7024. script_sample.	mvEnterprise Telnet Server sample startup script.
install.pdf	Installation guide.
rlsnote.pdf	Release notes.
roll_log_pseudo	Sample roll log cron script.
eternal_sleep	mve_tel support program.
vtape_compress	Virtual tape support script
vtape_decompress	Virtual tape support script.

6. Execute the install program by typing:

   ./install -o -m -i

   For more information regarding the mvEnterprise install program and options, refer to “mvEnterprise Install Program”.

   - If this is an upgrade, the install program displays the current mvEnterprise configuration and then prompts for the name to be used for the mvEnterprise monitor program. An example of such a name is prodpick.

     Proceed to Step 8.

   - If this is a new installation, the install program prompts for the mvEnterprise configuration control code and parameters as follows:

Prompt	Response
Enter the mvEnterprise main configuration control code	Enter the mvEnterprise configuration control code.
Enter the mvEnterprise ODA configuration control code	Enter the optional mvEnterprise/ODA configuration control code.
How many mvEnterprise terminals?	Enter the number of Pick terminals required for your system.
How many Phantom jobs?	Enter the number of Phantom jobs required for your system. A general rule is one Phantom line for every eight physical lines.
How many default virtual pages?	Enter the number of default virtual pages. The number of default pages has a direct effect on performance. If this is not a new system, the existing values in the config script, including the number of virtual pages, should not be altered without first consulting Raining Data Customer Support. As a default, enter 128.
Enter list of initial Level 0 database file full pathnames: When done, type **end**.	Enter each data base name. When all data base names have been entered, type **end**. Each data base name is entered and terminated with a carriage return. Refer to the section “Configuring Disks for Use With mvEnterprise On AIX” for more detail.
Enter the name to be used for the mvEnterprise monitor program?	Enter the name for the PICK monitor program (i.e. prodpick). The first four characters of the name to be used for the program must be unique from any other mvEnterprise virtual machine. These characters form the semaphore set identification for the machine.
How many Phantom processes started at coldstart?	Enter the number of Phantom processes to start at coldstart.
Do you wish to add default users to users script (y/n)?	Type **no** if there is no requirement for asynchronous terminal support. Type **yes** to build a generic boot script. The users script, built by install, is a generic boot script for mvEnterprise. If you request to add default users to the users script, it must be customized after its creation to the requirements of the installation.
How many Spooler contiguous overflow frames [0—10000]?	Enter the number of Spooler contiguous overflow frames.
How many Trans Logger contiguous overflow frames [0—10000]?	Enter the number of Trans Logger contiguous overflow frames.
How many Workspace contiguous overflow frames [0—10000]?	Enter the number of Workspace contiguous overflow frames.
How many Workspace overflow group allocations [0—25]?	Enter the number of Workspace overflow group allocations.

NOTE: In an environment where all users are connected via TCP/IP, at the prompt: Do you wish to add default users to the users script? type **n**.

7. The config.tape file *must be changed* to include the correct tape devices to be used under mvEnterprise. At a minimum, device 0 needs to be specified to continue the installation. The config.tape file contains 32 lines of data representing device 0 to 31 respectively. (e.g. **/dev/rmt0.1)**.

NOTE: These devices *must* be non-rewind devices.

8. Install the mvEnterprise Release 4.1. ABS by typing the command:

   ./absrestore

   This restores the mvEnterprise 4.1 ABS from the release tape. Successful completion of an absrestore displays the message:

   ABS tape loaded with XXX frames used.

9. If you wish to use the pickoda monitor program, proceed with the following steps:

   a) Save a copy of the current mvEnterprise monitor program (i.e., *prodpick*) to a new name. Type:

      mv prodpick prodpick.reg

   b) Replace the existing mvEnterprise monitor program with the mvEnterprise/ODA monitor program.

      cp -p pickoda prodpick

10. If this is a new installation or you are doing a complete file restore, proceed with Steps 11-15 to complete the installation procedure.

    If this *is* an upgrade, and you are not doing a complete file restore, perform a COLDSTART by typing the command:

    ./coldstart

    Then, proceed with Steps 14-15.

11. If this *is* a new installation, leave the mvEnterprise Release 4.1 tape inserted.

    If this *is not* a new installation, remove the mvEnterprise Release 4.1 release tape and insert the base file-save tape in drive 0.

12. Perform a file restore by typing the command:

    ./filerestore

    The following prompts display:

    Do you really wish to file restore prodpick (y/n)?
    Type **Y**.

    Load Data Tape and press "C"
    Type **C**.

Enter number of phantoms for restore, <CR> for none

Press Enter.

When the file restore is complete, remove the base file-save or release tape.

13. Restore any accounts which reside on account-save tapes, then remove the account-save tapes.

    If this is a new installation, the installation is complete.

14. If this is not a new installation, perform the incremental system upgrade procedure that follows. This procedure updates the release system accounts and files.

NOTE: *Do not* allow users on the system until the upgrade procedure is complete.

CAUTION: Data located in SYSPROG, LIBRARY, ASM, SCRIBE, ODA.ADMIN and any account included in future mvEnterprise release is affected. If you have altered the release files for any reason, you must maintain a backup copy with your changes. Refer to "Upgrade File Listing" for a complete listing of all files altered during the upgrade procedure.

During the upgrade, the upgrade program prompts for the option to upgrade all account master dictionaries. If you respond with Y, all account master dictionaries are updated using the MD-UPGRADE utility. MD-UPGRADE upgrades existing commands in each master dictionary and add additional, new commands based on the SEQ.UPGRADE.NEWAC item in the LST file. If you respond with N, you must manually upgrade all account master dictionaries.

- Insert the mvEnterprise Release 4.1. release tape in drive 0.
- Logon to the SYSPROG account.
- To attach to Drive 0, at TCL type:

  T-ATT 0

- To initiate the upgrade program, at TCL type:

  SYSTEM-UPGRADE

- Upon completion of the SYSTEM-UPGRADE procedure, remove the mvEnterprise Release 4.1. tape and store the tape in a safe location.

15. The upgrade to mvEnterprise Release 4.1 is now complete.

1.7 Upgrade File Listing

The following is a listing of all files that are altered during an upgrade.

Account	File	Account	File
ASM	DICT ASSEMBLER	LIBRARY	DICT TERMINALS
	CS-UTIL		TERMIO.STATUS
	DICT CS-UTIL		DICT TERMIO.STATUS
	DICT LINES		UTILITIES
	INSTRUCT		DICT UTILITIES
	NSYM		
	OSYM	ODA.ADMIN	DICT ODA.BP
	REL.BOOT.SYMBOLS		
	SYM	SCRIBE	SCB.BP
	TOSYM		DICT SCB.BP
			WP-MD
LIBRARY	DICT ACC		
	BLOCK-CONVERT	SYSPROG	BOOT.ABS
	ERRMSG		CNTL-FILE
	DICT ERRMSG		MENU-SP
	HELP-FILE		NEWAC
	DICT HELP-FILE		NEWAC,SYSPROG
	DICT JOB		PSYM
	LST		TERM-DEFS
	DICT PARS.RSLTS		DICT TERM-DEFS
	PARS.TAG.DEFS		UTILITIES-SP
	DICT QUEUE		DICT UTILITIES-SP
	DICT RUM		
	DICT STAT-FILE	SYSTEM	LIBRARY (MD)
	DICT SYSERR		ASM (MD)
	TERMINALS		

1.8 mvEnterprise Install Program

The installation program is located in tar format as the first file on a release tape. The purpose of install is to create the mvEnterprise environment shared by all mvEnterprise processes and build support scripts found in the mvEnterprise UNIX directory such as *absrestore* and *coldstart*.

The install program prompts for these mvEnterprise configuration parameters:

How many mvEnterprise terminals?

How many Phantom jobs?

How many default virtual pages?

Enter initial data base names:

When done, type 'end'.

Enter the name to be used for the mvEnterprise monitor program?

How many phantom processes started at coldstart?

Do you wish to add default users to users script (y/n)?

These prompts are described below.

How many mvEnterprise terminals?

The number of physical mvEnterprise lines this mvEnterprise virtual machine uses. This parameter specifies the maximum number of terminals and may be slightly larger than the current requirements.

How many Phantom jobs?

The number of Phantom lines this mvEnterprise virtual machine uses. A general rule is one Phantom line for every eight physical lines.

How many default virtual pages?

This prompt is for default virtual pages, and should be set to 128. Each mvEnterprise process started uses this number as the maximum

number of memory pages it may map at any one time. The number may be overridden with the mvEnterprise monitor -v option.

Enter initial data base names:

When done, type 'end'.

The location(s) of disk to be utilized by mvEnterprise. The database names are the disk node names. The base names were previously defined when the mvEnterprise environment was established in UNIX.

Enter the name to be used for the mvEnterprise program?

Renames the mvEnterprise program to the name entered and builds all support scripts accordingly. An example is *prodpick*. The first four characters of the PICK program must be unique from other mvEnterprise virtual machines since the semaphore set, used for locking, is derived from these characters. A list of these supporting scripts follows; some of them are built using the newly designated machine names from the response to this prompt.

If this is a new installation, the installation program displays two additional prompts.

How many phantom processes started at coldstart?

- If Phantom processes are not to be used very often or are only being used for batch processing, the user should answer 0 (zero) to this prompt.
- If a number of Phantoms are to be used for processing short duration jobs that are being shut down and started repeatedly, the number of Phantom processes needed to run these jobs should be entered.
- If the user is uncertain of his application requirements, enter the total number of Phantom processes.

Do you wish to add default users to users script (y/n)?

If this installation does not have a requirement for asynchronous terminal support, the user should answer **n** (no). Otherwise, answer **y** (yes) which builds a generic boot script containing a record for each mvEnterprise user. The user's script can then be customized for the specific needs of this installation.

1.8.1 Support Scripts

The support scripts and files built by the mvEnterprise install program are listed below:

.cshrc	Script executed upon entry to a C shell.
.login	Script executed upon login to the directory.
abs	Binary file containing an image of the executable mvEnterprise virtual assembly code.
absrestore	Script to load an abs area from tape. The default drive is zero.
coldstart	Script to set the coldstart flag and start mvEnterprise processes via the scripts *phantoms* and *users*.
common1	Common area shared by mvEnterprise processes.
config	File containing information regarding the mvEnterprise environment such as number of ports, number of phantoms, default number of virtual pages, and location of mvEnterprise data space.
config.tape	File containing tape device node names.
config.ethernet	File containing pseudo Ethernet tape device node names.
filerestore	Script to perform a file restore. Sets the filerestore flag, then executes the script *Phantoms*.
install	Program to create the mvEnterprise environment. It also creates: .cshrc, .login, absrestore, coldstart, common1, config, config.tape, config.ethernet, filerestore, phantoms, killpick, users and warmstart.

killpick	Script to kill mvEnterprise processes. This can be very dangerous. An mvEnterprise machine should *only* be stopped with the TCL command SHUTDOWN, and this script should only be used if you are directed to do so by Raining Data Customer Support.
phantoms	Script created during the install procedure to separate Phantom and printer lines from user lines.
pick	mvEnterprise monitor or kernel. It is renamed during install to a unique name such as prodpick or devpick.
picksync	mvEnterprise disk flushing program. It is renamed during install to a unique name such as prodpicksync or devpicksync.
pickoda	mvEnterprise/ODA monitor or kernel.
pick.lpd	Program to allow the sharing of the UNIX spooler by multiple virtual machines.
scripts	Directory created during the install procedure. It contains scripts used by various mvEnterprise processes.
start_flusher	Script created during the install procedure to start mvEnterprise flush program. Executed by the coldstart, filerestore and warmstart scripts.
users	Script created during the install procedure to start mvEnterprise users. Executed by the coldstart and warmstart scripts.
warmstart	Script created during install to be used in conjunction with the WARMSTOP utility.

1.9 Installation Options

Options for install are listed below:

-m{mail_addr} Specifies an address to mail critical mvEnterprise error and warning messages, where *mail_addr* is defined in the form system-name\!path-name. Using the -m option without specifying an address suppresses sending mail. The install default is to send mail.

-t{term_node} Specifies the terminal on which to display mvEnterprise error and warning messages, where *term_node* is a terminal defined in /dev. The install default is the system console (/dev/console).

-o Specifies removing and recreating common1 from information in the file *config*. If config does not exist, install prompts for terminals, Phantoms, memory pages, and data names to use. Never use the -o option if there are active users on the mvEnterprise machine.

-i Use this option when creating a DB file on AIX. Initializes a new database by physically writing zeros from frame 1 to MAXFID. When multiple databases are defined in the config file, a background process is forked in parallel for each DB.

-w Specifies *not* to fork background processes when initializing a database. This causes the database files to be initialized serially, one at a time.

1.10 mvEnterprise Monitor Program

The following mvEnterprise monitor program options are available. These options are invoked by a dash, the lower case letter indicated, and in some cases, a parameter following the option.

-a Restore ABS from a mvEnterprise release tape.

-d Set default tape device. If not used, defaults to -d0. (See config.tape)

-dc Sets the compressed virtual tape device as defined in config.tape (dc0, dc1, and so on).

-de Set default Ethernet device. Allows the use of an Ethernet tape device to do a full file restore from another mvEnterprise virtual on the network. (See config.ethernet)

-dp Sets the virtual tape device as defined in config.tape (dp0, dp1, and so on).

-e Add file systems to mvEnterprise overflow without performing a save and restore. Used instead of the -x for the first coldstart after adding file systems.

-f Set file load flag. This causes a full file restore.

-g Display system locks, group locks and stop.

-g{r} Display host ID, system locks, group locks, record locks and stop.

-gu{r} Display system locks, group locks, UNIX semaphore usage information, record locks stop.

-h Inhibit the EXIT and SH/TOPIX commands for this line.

-i Pass stacked data to mvEnterprise from the UNIX command line. The general format is:

#prodpick -i'stacked.data'

where *stacked.data* is the string to be passed to mvEnterprise. Note that the specified string must be surrounded by single quotation marks. The 'stacked.data' is always be followed by a carriage return. Unlike the

mvEnterprise/BASIC DATA statement, this data is stored as though the user actually typed it in. It appears on the screen, one character at a time, until the input stack is exhausted. Note that the input buffer is limited to 300 bytes.

In addition to single characters, a carriage return can be fed to the input stream with the two-character escape sequence '\r'.

-l Set the mvEnterprise line number for this process. If not supplied, mvEnterprise locates the first unused line. The general form is -ln where *n* specifies the mvEnterprise line number. The form -ln-m can be used to specify a range of mvEnterprise line numbers to use. The first unused mvEnterprise line in the range is assigned to the process.

-n{n} Alter the default UNIX scheduling priority.

-oh Suppress LOGON banner.

-ol Log line off when carrier drop detected.

-ot For mvEnterprise processes connected via telnet. The -ot option causes a logged on mvEnterprise process to be left in a re-startable state when its telnet connection is lost. The process can only be restarted using the monitor option -l. For mvEnterprise processes which are logged off, the loss of the telnet connection does not require the monitor option -l. The mvEnterprise port is available to any new monitor activation. mvEnterprise processes that require an immediate logoff when the telnet connection is lost should use the monitor option -ol.

-qb Allows you to break the current process.

-r Set communications options. The general form is -rfp where f and p specify flow control and parity as follows:

*flow: y -X-on/off flow control (default).

n -No flow control (passed to program as data).

i -Input flow control only.

o -Output flow control only.

NOTE: For all of the options above, hardware output flow control is enabled and hardware input flow control is disabled.

As an alternative, flow control can be obtained by entering a numeric option to reflect the desired flow control. This option is formed by adding together the appropriate numbers from the table below to provide a more flexible control of flow.

0 No flow control

1 X-on/off output control

2 X-on/off input control

4 RTS/CTS output control

8 RTS/CTS input control

For example, the default flow control is the number 7 (7 = 1 + 2 + 4 from the table above) for bi-directional X-ON/OFF and output hardware flow control.

parity: n 8-bit, no parity (default).

s 8-bit, no parity, strip high bit.

e 7-bit, even parity.

o 7-bit, odd parity.

The default flow and parity control is -ryn, or x-on x-off flow control and 8-bit, no parity.

-s{n} Set the baud rate for the terminal. Defaults to 9600.

-t Set the UNIX terminal device address. This option has a parameter immediately following giving the UNIX path name of the terminal to use as the port. For example, -t/dev/pts01. If not supplied, the default is your local terminal, if running as a foreground task, and no terminal, (Phantom), if running as a background task.

-v Alter the default number of virtual memory buffers for this line. This is followed by a number from 20 to 256. Since memory requirements for a 256 PICK printer are low, printer lines should be set to a value of 20 pages.

CAUTION: Altering the default number of virtual memory buffers for a line increases the true memory requirements of the system.

-V{n} Display or alter the default size of the virtual memory buffer table (VFS) allocated for each line. The optional parameter n is a number between 20 and 256. Used without the numeric parameter, the size of virtual memory buffer table is displayed. For example:

```
./prodpick -V
Current VFS = 36; Map = 1; Sequence = 0;
Adjusted lines = 0;
```

where ***Current VFS*** is the size of the VFS table allocated per process, ***Map*** is the number of virtual memory buffers mapped per VFS table entry, ***Sequence*** is the number of times the size of the VFS table has been modified, and ***Adjusted lines*** is the number of processes that modified their VFS table to the current size.

Used with the numeric parameter, the current size of virtual memory buffer table allocated for each line is altered. All processes whose VFS is greater than or equal to the VFS specified in config are permitted to increase their VFS by the difference between the config VFS size and the new current VFS size.

For example, if the VFS size specified in config is 36, the following command alters the current VFS by 12:

```
./prodpick -V48
Current VFS = 48; Map = 1; Sequence = 1:
Adjusted lines = 0;
```

Processes whose VFS is greater than or equal to 36 (the VFS specified in config) are permitted to increase their VFS by 12 (the difference between 48 and 36). In this example, processes started with the default 36 VFS are increased to 48. Processes started with a VFS of 64 are increased to 76. Processes whose VFS is less than 36 never adjust their VFS.

-M{n} Used in conjunction with -V to adjust the number of virtual memory buffers mapped per VFS table entry. Valid entries for parameter n are 1, 4, 8, 16. The total number of virtual memory buffers allocated per line is equal to the VFS table size times the number of buffers per VFS table entry. The command ./prodpick -V64 -M4 causes the default number of virtual memory buffers for each line to be 256.

-w Set warmstart flag. Should only be used when machine has been warmstopped.

-x Set the coldstart flag. Implied by options -a, or -f.

-z Same as -x. In addition, flags coldstart to return all acquired workspace overflow to the file space table.

1.11 mvEnterprise Disk Flushing Program

This program is available on the AIX systems, and would normally replace the native system *syncd* or *fsflush* daemons (background processes). The program is mvEnterprise machine specific and performs as follows:

- The mvEnterprise database is divided into two segments; the space above the system file base (*SYSBASE*) and the space below it, enabling aggressive flushing of the data frames (those located above SYSBASE). Flushing of the workspace frames (below SYSBASE) is unnecessary.
- The data space is divided into approximately equal sections (slices). Each section on a single drive is mmaped and flushed to disk. The disk flusher then sleeps a prescribed amount of time and then continues to the next section on the next disk drive.
- This process allows flushing of the entire file system data space in approximately in n x m (where n equals the number of sections and m equals the sleep time in seconds). The defaults for the program are 60 sections and a one-second sleep, so the data space is synchronized to disk approximately once per minute.

NOTE: The workspace below SYSBASE is not normally synchronized (synced) since it contains no useful data in the event of a system crash.

- After completing a number of data space flush cycles (loops), the program attempts to sync first the entire mvEnterprise virtual machine and finally the entire system. The last step is necessary because the user may have terminated the standard AIX synced process.
- The act of syncing the entire machine may create the same performance problems the user is attempting to avoid. To minimize this possibility, most of the system should already be flushed before issuing the sync request. The program performs the following tasks:
    - Changes the sleep setting on the last pass through the data frames to a much smaller value.
    - Syncs sections of the work space using this smaller sleep time.
    - Executes fsync (an AIX system call) on the mvEnterprise file systems with the smaller sleep time.
    - Issues the system wide sync.

The following parameters are available for the disk flushing program (*n* refers to a numeric parameter in the range specified by the option description):

-v Verbose - issues constant status messages.

-f Specifies a path and file to log messages. If -f is not specified, messages are displayed on the line that started the disk flushing program.

-dn Number of data sections. The data space is divided into a number of actual sections (represented by the numeric parameter) spread across all drives. The default value is 60; the range is 15 to 300.

-sn Sleep time in milliseconds between the flushing of data sections. For example, parameter -s2000 would sleep 2 seconds between data sections. The default is 1 sec; the range is 0.25 to 15 sec.

-wn Number of workspace sections. Within the workspace, each level 0 drive is divided into a number of sections represented by the numeric parameter. This yields a x b (where ***a*** represents the number of workspace sections and ***b*** represents the number of primary drives). The default is 10; the range is 5 to 50.

-tn Sleep time in milliseconds between workspace slices. For example, parameter -t100 would sleep 100 milliseconds between workspace sections. The default is 0.10 sec; the range is 0.10 to 1 second.

-ln Number of loops through data space before a full flush. The default is 15; the range is 0 to 300. Zero suppresses the full flush.

NOTE: The approximate data flushing time is given by d x s (where ***d*** is the number of data slices and ***s*** is the sleep time between data slices). The approximate work flushing time is given by w x t x p drives (where ***w*** represents the number of workspace sections, ***t*** represents the sleep time between flushing workspace sections, and ***p*** represents the number of primary drives).

To increase the ability to control redundant workspace flushing, a new parameter has been added to the config.ovf file in the mvEnterprise home directory. This file overrides the default values for the sizes of the

spooler, transaction logger and workspace overflow blocks. Line three, which specifies the workspace block size, is now allowed an additional parameter. This parameter indicates the number of blocks to be allocated at file restore time. These blocks are allocated below SYSBASE and their use can dramatically improve the read/write ratios on the disks. The user should allocate *all* of the expected workspace requirements through this mechanism. For example, if line three contains *10000,10*, then 100,000 frames of workspace overflow are allocated below SYSBASE and only need to be flushed once every *loops* (***-l***) times through the database.

The flush program is executed from the start_flusher script. This script is executed upon a coldstart, filerestore or warmstart. The flush program shuts down automatically after a SHUTDOWN or WARMSTOP. By default, the UNIX syncd daemon is replaced by the flush program. When the flush program shuts down, it starts the UNIX syncd daemon if necessary. Place any flush options in the start_flusher script.

./prodpicksync -l0 & Suppresses the full flush. That is, the UNIX syncd daemon is not replaced.

./prodpicksync -f/usr/stat/synclog & Logs all messages to the synclog file in /usr/stat.

1.12 Extending Disk Space

The extend option is provided to avoid performing a SAVE and RESTORE of the database to extend disk space. Follow the steps below to extend the available disk space for the mvEnterprise database.

1. Create the new logical disk devices and add the device names to the config script. Precede new disk device names by a new level number.

   For example, an existing machine contains two disk devices /dev/dskwwww and /dev/dskxxxx. If two new disk devices, /dev/dskyyyy and /dev/dskzzzz, are to be added without performing a SAVE and RESTORE of the database, the information reflected in the config file is:

	Before	After
Physical ports	100	100
Phantoms	20	20
VFS buffers	128	128
Disk device	0/dev/dskwwww	0/dev/dskwwww
Disk device	0/dev/dskxxxx	0/dev/dskxxxx
Disk device		1/dev/dskyyyy
Disk device		1/dev/dskzzzz

Example 1: Extending Disk Space

2. Ensure that all users are logged off and that Phantoms and printers are inactive.

3. Perform a SHUTDOWN from mvEnterprise.

4. Run the mvEnterprise install program. Type:

   install -o -m -i

5. Flag the mvEnterprise database for disk space extension. Type:

   ./prodpick -l0 -e

   where *prodpick* is the name of the mvEnterprise monitor program. The -e option flags the coldstart procedure to add the new available disk space (frames) to the overflow table.

6. Start the mvEnterprise Phantom processes. Type:

   ./phantoms

7. Coldstart the mvEnterprise virtual machine. Type:

   ./prodpick -l0

   where *prodpick* is the name of the monitor program. The instruction above begins the coldstart which includes the flag set for disk extension in step 5 (./prodpick -l0 -e).

8. Once the coldstart is complete, start the user processes. Type:

   ./users

NOTE: Once this process is complete, *additional disk devices cannot be added at the new level*. The level number *must* be incremented if extending disk space a second time. When performing the next SAVE and RESTORE of the database, all level numbers should be set to 0.

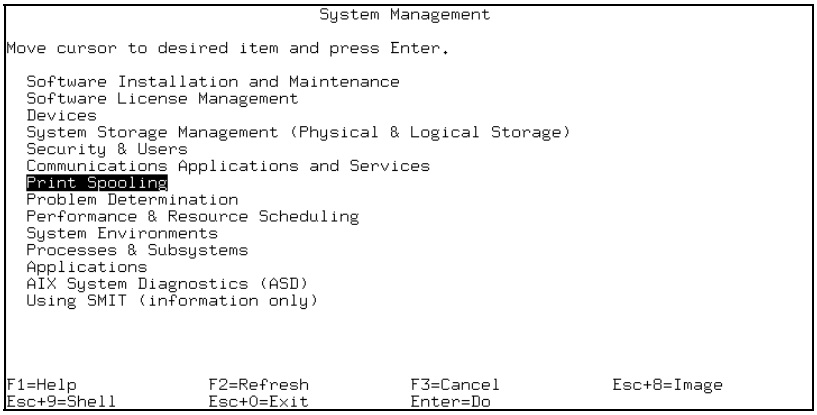
There is a 4 level maximum with valid levels of 0-3.

1.13 mvEnterprise Line Printer Driver Program

The program *pick.lpd*, which is located on the release tape with the mvEnterprise *monitor* and *install* programs, is useful for sites which operate multiple mvEnterprise machines. The driver allows a machine access to the UNIX spooler; therefore, two machines can share a printer since they are both outputting through the same physical device. An example of starting the line printer driver using a local print spooler queue for a serially-attached Hewlett-Packard LaserJet III follows:

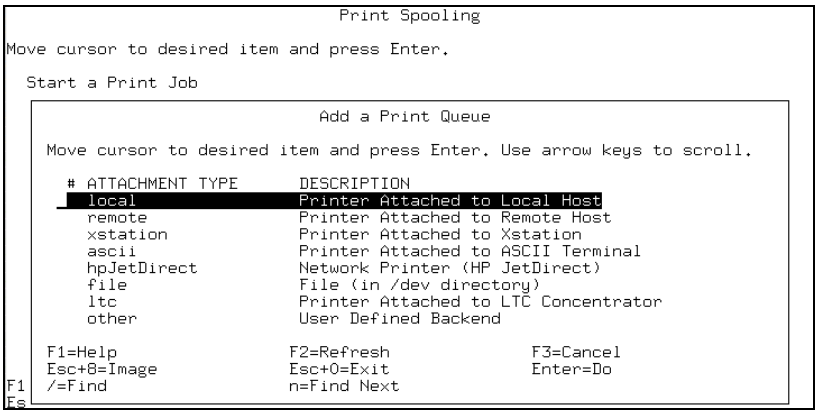
1. Invoke smit (the System Management Interactive Tool) by typing **smit** from an AIX command shell. (Note that you must have *root* user privileges to execute this program).

   For more information on smit, AIX provides online documentation for its commands using the standard UNIX *man* facility. The hypertext files used by man are normally located on a CD-ROM supplied with the system. Refer to the AIX documentation to learn how to mount the CD-ROM as a file system and access the man pages.

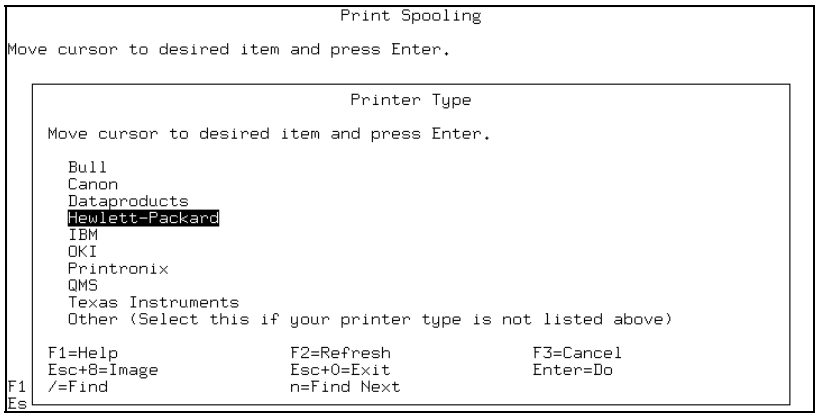


2. Select the option Print Spooling by using the cursor movement keys to move the highlight bar to the correct position. Press the Enter key.

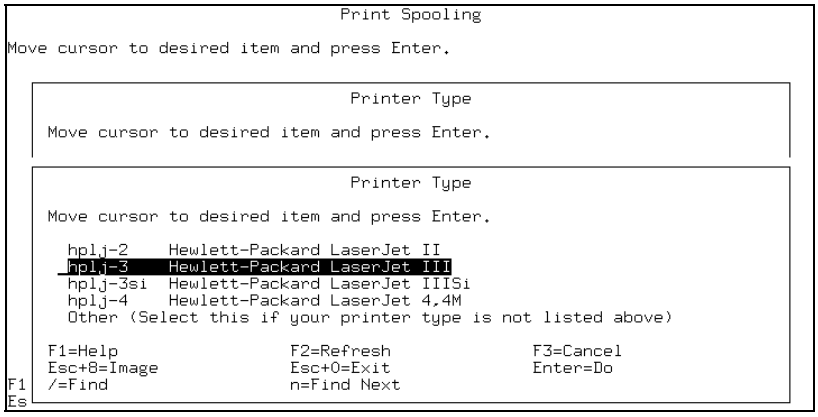
3. Select Add Print Queue.



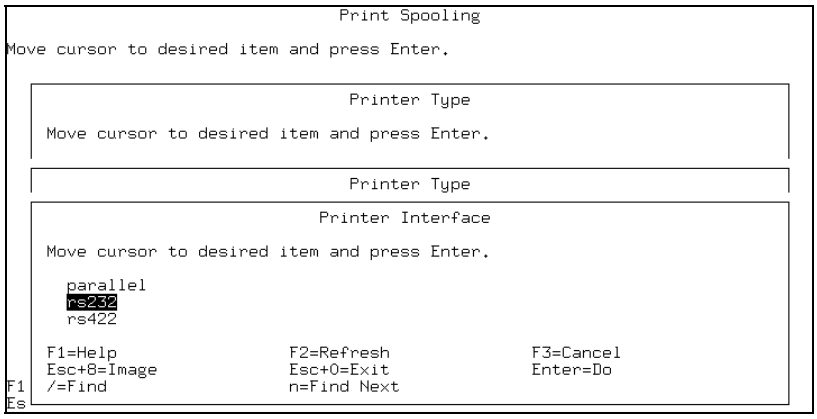
4. Select local Attachment Type (the printer is physically connected to this computer).



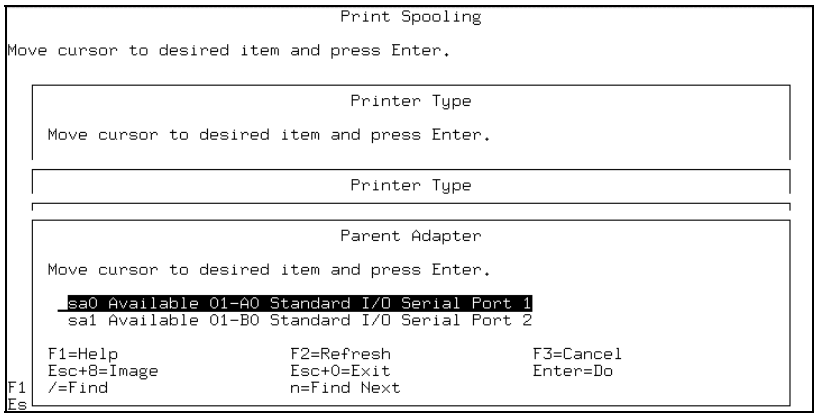
5. Select the Printer Type (i.e., manufacturer), Hewlett-Packard.



6. Select the Printer Type (model), hplj-3.

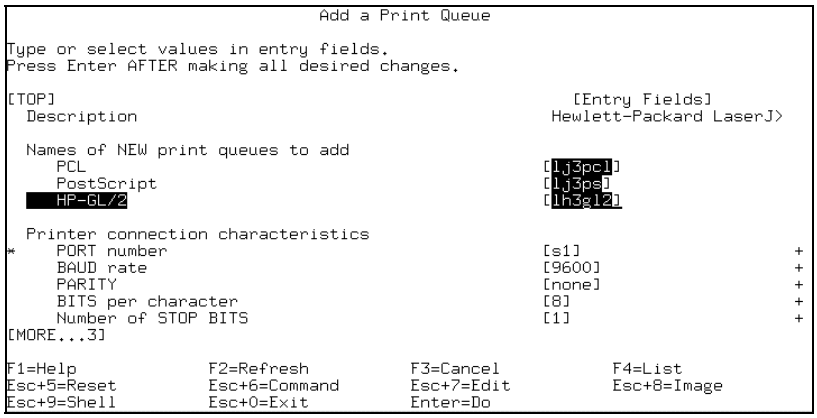


7. Select a Printer Interface of rs232 (serial connection).



8. For this system, the Parent Adapter is sa0.

NOTE: This setting may vary based on your system's available hardware.

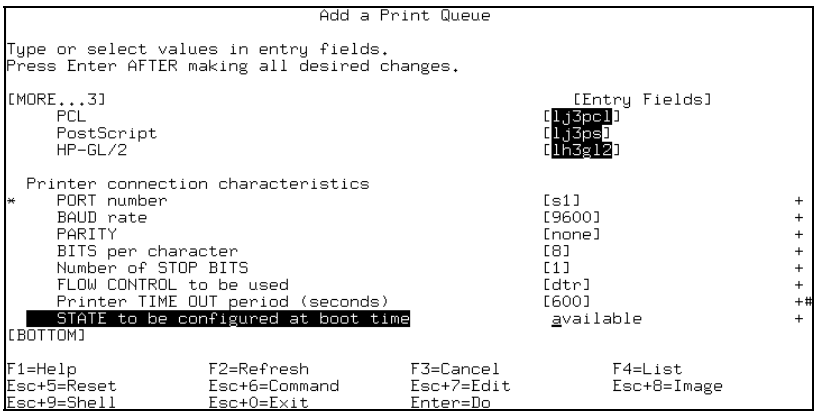


9. Type the names of the new print spooler queues to be added.

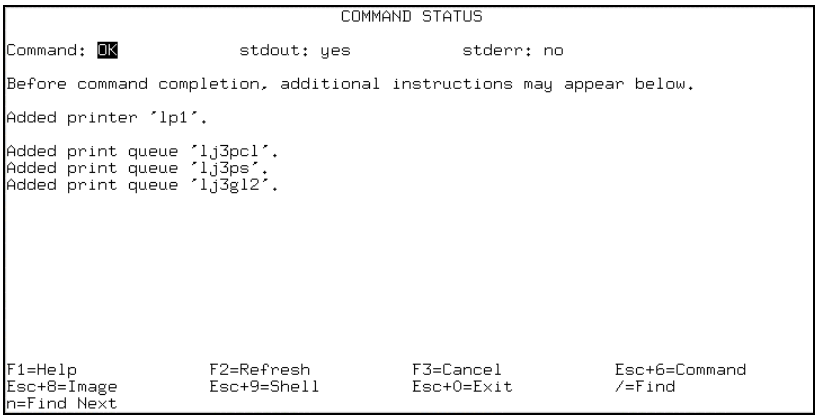
- Type the name into the field, using the cursor movement keys to move between fields. *Do not* press Enter until you have completed all the requested data entry fields.

  For some fields, you may press function key four for a list of valid options from which you may choose. You may also press function key one for a context-sensitive help screen.

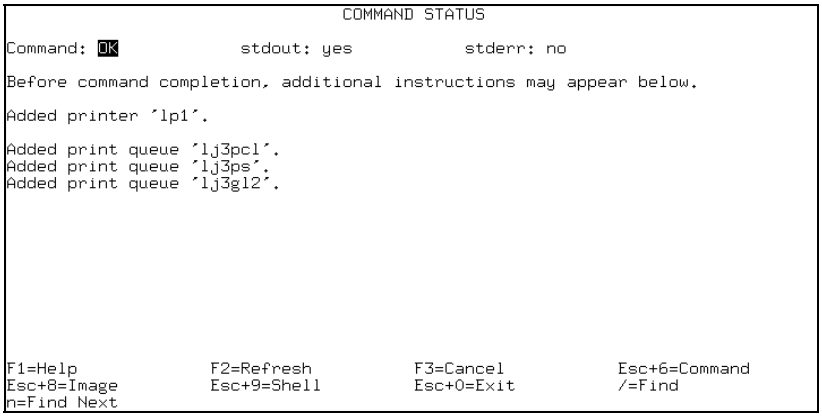
  For a Hewlett-Packard LaserJet III, you need to specify queue names for the following *printer command languages*: PCL, PostScript and HP-GL/2. (For more information, or if your printer differs from the one described, please see your printer's documentation.)



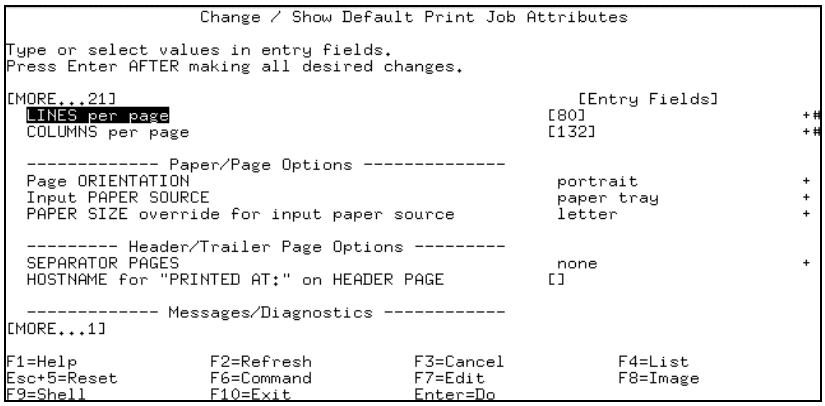
10. Complete the form by filling in the Printer Connection Characteristics: the PORT number (for this computer, the first serial port or s1); the data transmission rate, given in bits per second or BAUD (9600); the PARITY type (none); the number of BITS per character (8); the Number of STOP BITS (1); the type of FLOW CONTROL to be used (dtr); the number of seconds to wait for a response from the printer before a TIME OUT occurs (600); the initial state of the printer after system startup (available).



11. Press the Enter key to execute the request. You should see a Command Status screen similar to the one depicted below.



12. Press the Cancel key to return to the Print Spooling menu.
13. Select Change/Show Printer Characteristics.
14. Press the List key to display a listing of available printer queues and select the correct queue from the list.
15. Select Default Print Job Attributes.



16. Ensure that the LINES per page and COLUMNS per page values are sufficient to accommodate the widest and deepest print jobs, which are sent to this printer. Use the arrow keys to move to these fields.

17. Press the Enter key to execute the command.

18. Change to the directory into which mvEnterprise was installed.

19. From an AIX command shell, type this command:

    ./prodpick.lpd prodpick.lj3pcl.99 lj3pcl 10 {-r} &

    where:

prodpick.lpd	The line printer driver program.
prodpick.lj3pcl.99	The name used for the pipe; it is a concatenation of the UNIX spooler queue name and the mvEnterprise port.
lj3pcl	The name of the UNIX spooler queue to be used by this pipe.
10	The number of seconds the pipe is allowed to be idle before it is closed.
-r	Use this option only if the spooler queue specified above is on a remote system. (Note that this parameter is optional but, if present, must be at this position in the command line.)
&	Tells UNIX to run this process in the background.

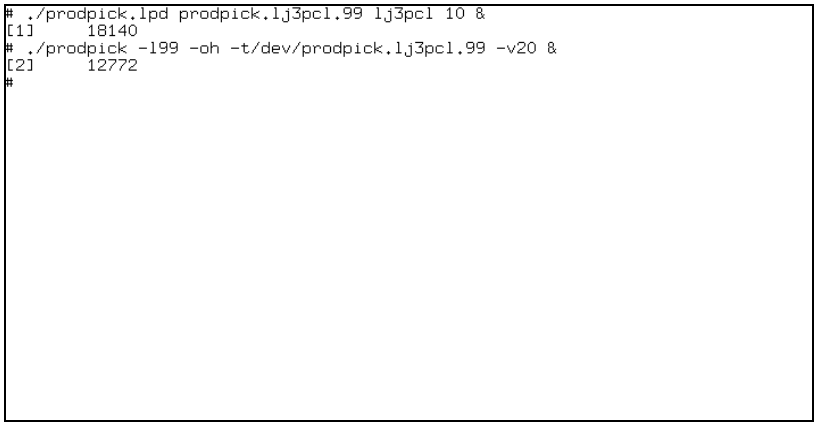
20. From an AIX command shell, type this command:

    ./prodpick -l99 -oh -t/dev/prodpick.lj3pcl.99 -v20 &

    where:

prodpick	mvEnterprise program.
-l99	Run printer on mvEnterprise port nintynine.
-oh	Suppress LOGON banner at startup of printer process.
-t/dev/prodpick.lj3pcl.99	Use this pipe for output.
-v20	Restrict to 20 the number of VFS pages for use by the mvEnterprise spooler process.
&	Run process in the background.

The pipe name is written to /tmp/prodpick.lj3pcl.99 as a lock to prevent two pipes with the same name. This lock is released when the pipe is shut down. If this procedure is being run from a script, it is necessary to sleep for 5 seconds between commands to allow the pipe adequate time to start.



21. From within mvEnterprise, start the printer. Type:

    STARTPTR 0,0,0,S99

where:

STARTPTR	The name of the command to start a printer
0	The mvEnterprise printer number.
0	The form queue number associated with this printer
0	The number of pages to eject between print jobs
S99	Signifies that the printer is attached serially and is running on port 99.

```
:STARTPTR 0,0,0,S99
 The printer control block has been initialized.
:
```

2. Configure the System for mvEnterprise on AIX

2.1 Getting Started

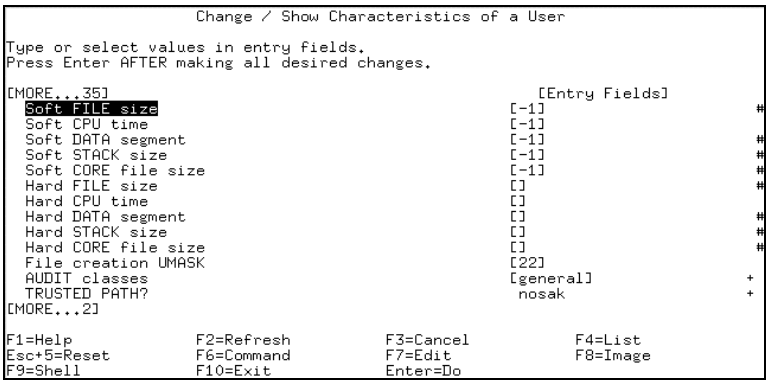
1. Ensure that user process resource limits are set correctly for all users who are accessing mvEnterprise (including root, if necessary).

   - The maximum size (in blocks) to which a file within AIX may grow should be set at unlimited. Check or set the maximum file size for a user with the smit (the System Management Interface Tool) command.

     - Select Security & Users.
     - Select Users.
     - Select Change/Show Characteristics of a User.

   - Type the user name, then locate the Soft FILE size field in the form which is displayed. If the value is -1 (negative one), then the file size is unlimited. Otherwise, change the value to -1.

```
                    Change / Show Characteristics of a User

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

[TOP]                                                  [Entry Fields]
* User NAME                                           root
  User ID                                             [0]                          #
  ADMINISTRATIVE USER?                                 true                        +
  Primary GROUP                                       [system]                     +
  Group SET                                           [system,bin,sys,securit>     +
  ADMINISTRATIVE GROUPS                               []                           +
  ROLES                                               []                           +
  Another user can SU TO USER?                         true                        +
  SU GROUPS                                           [ALL]                        +
  HOME directory                                      [/]
  Initial PROGRAM                                     [/bin/ksh]
  User INFORMATION                                    []
  EXPIRATION date (MMDDhhmmyy)                        [0]
[MORE...37]

F1=Help             F2=Refresh          F3=Cancel           F4=List
Esc+5=Reset         F6=Command          F7=Edit             F8=Image
F9=Shell            F10=Exit            Enter=Do
```



2. Turn on the AIX Command Stacker.

   - To activate the emacs-style stacker, type:

     set -o emacs

     - Use Ctrl+P and Ctrl+N keystrokes to scroll backwards and forwards through existing commands.
     - Apply any changes.
     - Press the Enter key, which executes the currently displayed command.

   - To activate the vi-style stacker, type:

     set -o vi

     - vi starts in *input mode*. To type a command, press ESCAPE first to enter *edit mode*. Use K and J keys to scroll backwards and forwards through existing commands.
     - Apply any changes.
     - Press the Enter key, which executes the currently displayed command.

   If you are familiar with either the emacs or vi editor, you may wish to add one of the above commands to root's .profile file so that the desired command line editor is activated every time you login as root.

3. Activate the AIX *man* Pages.

   AIX provides online documentation for its commands using the standard UNIX *man* facility. The hypertext files used by man are normally located on a CD-ROM supplied with the system. Refer to the AIX documentation to learn how to mount the CD-ROM as a file system and access the man pages.

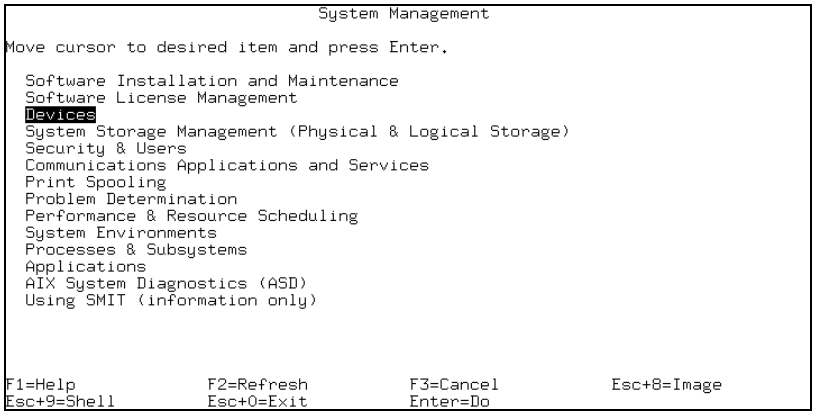
2.2 Configure Tape Devices for mvEnterprise on AIX

mvEnterprise relies on AIX to provide driver support for tape devices. These should be configured using smit**.** An example to add a 4mm DAT drive is given below.

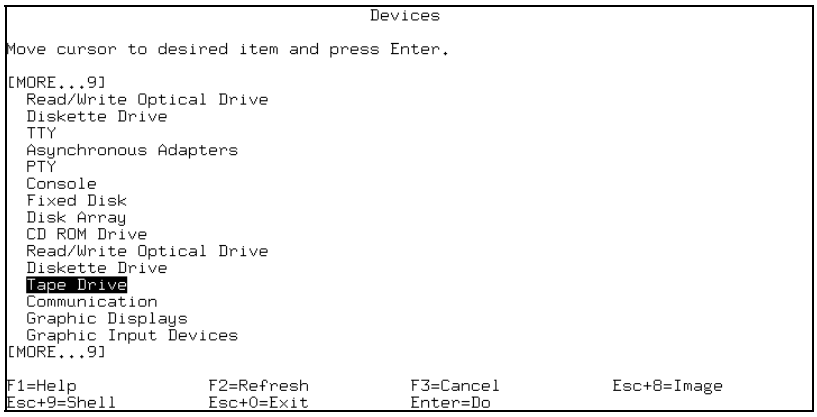
1. At an AIX command shell, type **smit.** The System Management menu displays.

NOTE: The example screens shown here are intended to be representative of those you would see on your system. However, due to factors such as differing hardware, your system's screen displays may vary from these examples.

If you can't type in the entry, try pressing the appropriate function key.

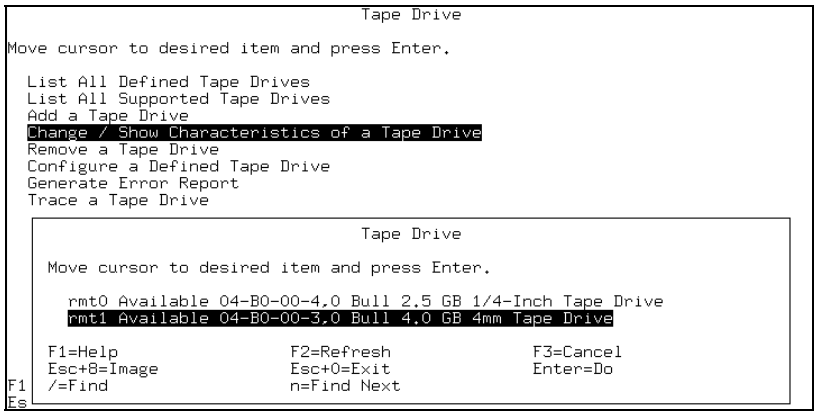


2. Select Devices. The Devices screen displays.



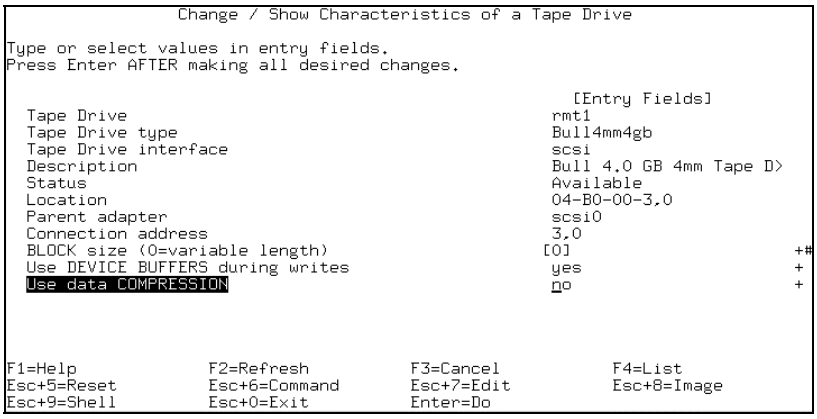
3. Select Tape Drive. The Tape Drive screen displays.

4. Select Change/Show Characteristics of a Tape Drive. A window appears on the screen prompting the selection of the tape drives currently installed in the system.



5. Select these options as indicated the following screen:

   - BLOCK SIZE (0=variable length). Type **0**.
   - Use DEVICE BUFFERS during writes. Type **yes**.
   - Use data COMPRESSION. See the "Special Considerations for 4mm DAT Units" section following for information on selecting the compression option.



2.2.1 Special Considerations for 4mm DAT Units

For 4mm DAT drives, compression needs to be correctly specified. Newer devices support data compression, allowing them to write between 2-3 times the normal quantity of data on the tape, while at the same time reducing the time taken to read and write tapes. Normally, this feature should be turned on. However, if you are writing tapes to be read by other 4mm DAT units that cannot handle compressed data, you need to turn data compression off.

2.2.2 Special Considerations for Quarter-Inch Cartridge Tape Units

Tape density and block size are of particular importance when using quarter-inch tape units. Density setting 34 selects QIC 2.5GB mode of operation (COMPRESSION = NO), further selecting COMPRESSION = YES in this mode selects QIC 5.0GB mode, 21 selects QIC1000 mode, 17 selects QIC525 mode, 16 selects QIC150 mode, and 15 selects QIC120 mode.

In all cases you *must* set the tape BLOCK size to 512.

Depending upon the model of the tape drive installed in your system and the specification of the tape cartridge used, some of the above settings may not be applicable or allowable. Tape units automatically read tapes created at any of the applicable densities, and write them at either of the

two specified densities, assuming this is valid for both the tape drive and tape cartridge specification used.

2.2.3 Further Configuration Information For All Tape Devices

Further information on all operational tape drive parameters for all tape device types may be found in the manual supplied with your system titled *'AIX DPX/20 System Management Guide OS & Devices'* in the section 'Tape Drive Attributes'.

2.2.4 Update the config.tape file

A minimum device 0 needs to be specified to install mvEnterprise. The config.tape file contains 32 lines of data representing devices 0 to 31 respectively. For example, to make rmt1 the default tape drive, or device 0, the first line in config.tape should be:

```
/dev/rmt1.1
```

where the suffix 1 signifies that the tape device rmt1 is a non-rewind device. On a new installation, the install program attempts to build the config.tape file based on the tape devices it has found on the system.

2.3 Configure Disks for mvEnterprise on AIX

AIX requires that you add new disks to one of the existing volume groups, or create a new volume group and add the disks to that group before those disks can be used. It is recommended that you create a separate volume group for each disk in the mvEnterprise database.

Normally, an AIX system is delivered with only one of the disks added to rootvg, and the other disks, while installed, cannot be used. To identify them, issue an lspv command. For example:

```
# lspv
hdisk0          00000174cfa54606    rootvg
hdisk1          000001747db5db7a    None
hdisk2          000001747db63d67    None
#
```

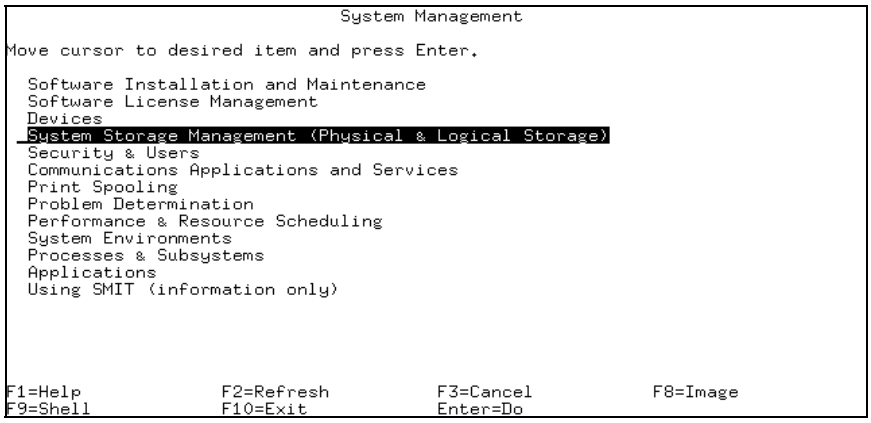
If you want more detail about disks, use the lsdev command:

```
# lsdev -Cc disk
hdisk0 Available 04-A0-00-0,0 Bull 4.2 GB 16 Bit SCSI Disk Drive.
hdisk1 Available 04-A0-00-1,0 Other SCSI Disk Drive
hdisk2 Available 04-A0-00-2,0 Other SCSI Disk Drive
# 
```

The above example demonstrates the addition of one volume group and one logical volume. The disk named hdisk0 is already part of rootvg. The disks hdisk1 and hdisk2 cannot be used until they are added to new volume groups.

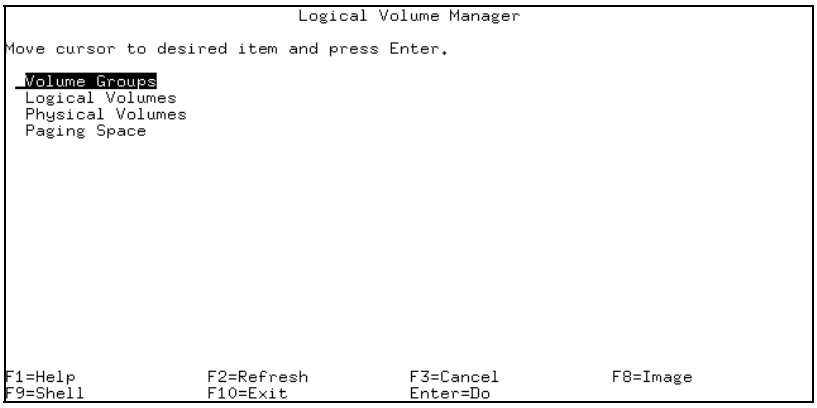
To create a new volume group (we recommend one volume group for each disk drive):

1. At an AIX command shell, type **smit.** The System Management menu displays.



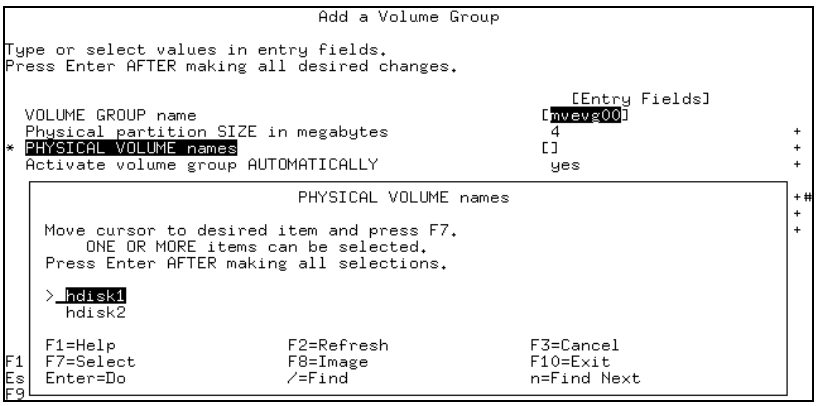
2. Select System Storage Management (Physical & Logical Storage).
3. Select Logical Volume Manager.
4. Select Volume Groups.
5. Select Add a Volume Group, and then fill in the form, which is displayed.
   - VOLUME GROUP name. Type **mvevg00**

     where ***mvevg*** is mvEnterprise volume group and ***00*** represents the first volume group (the second volume group is numbered 01, and so on.).



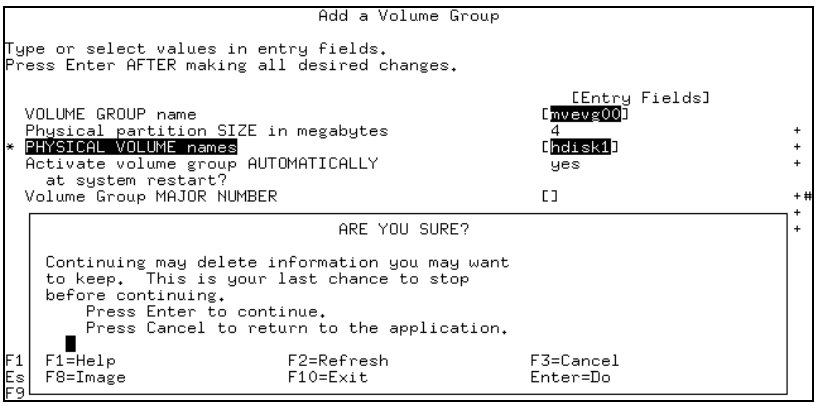
6. Arrow to the PHYSICAL VOLUME names field. Press the List key. The PHYSICAL VOLUME names window displays.

7. Select a disk name, and press the Select key. Press Enter to confirm the choice.

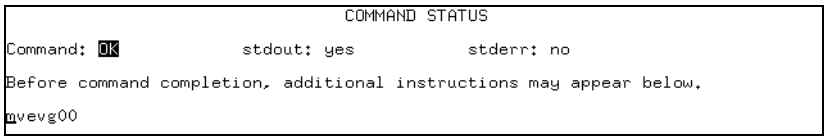


8. Press Enter to add the volume group.

9. Press Enter once more to confirm the addition of the volume group.



The Command Status window displays a message that the command was executed successfully.

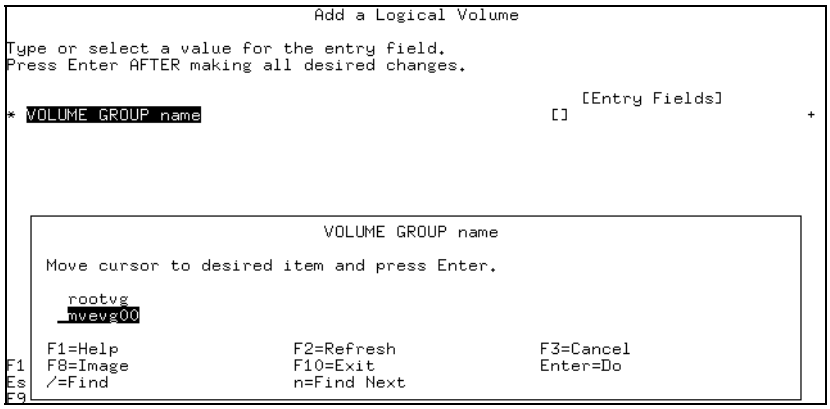


2.3.1 Create a Logical Volume to Store mvEnterprise Data

As a first time user, you also need to create logical volumes within each volume group to contain the AIX file systems where you store your mvEnterprise data.

The following screens demonstrate the creation of a logical volume named *mvelv000* within the mvevg00 volume group. The logical volume has a size of 800 megabytes and is not be striped.

1. Type **smit** from an AIX command shell. The System Management menu displays.
2. Select System Storage Management (Physical & Logical Storage). The System Storage Management menu displays.
3. Select Logical Volume Manager. The Logical Volume Manager menu displays.
4. Select Logical Volumes. The Logical Volume menu displays.
5. Select Add a Logical Volume. The Add a Logical Volume form displays.
   - At the VOLUME GROUP name field, press the List key to display the currently existing volume groups.
   - Select the appropriate volume group and press the Enter key to confirm the choice.



6. Type the Logical volume NAME. (Suggested; mvelv000, where ***mvelv*** is the mvEnterprise logical volume, 00 refers to the volume group, and 0 represents the first logical volume in that volume group.) The name, which was, entered displays.

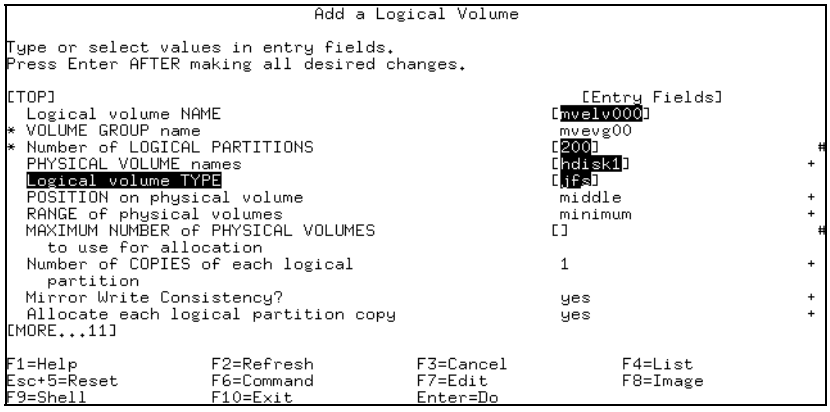
7. Type the Number of LOGICAL PARTITIONS. This number, multiplied by the size of the logical partition, equals the size of the logical volume (as seen in the following screen). It also must be less than or equal to the maximum number of logical partitions (see Step 11).

8. Advance to the PHYSICAL VOLUME names field, and press the List key.

9. Indicate the name of the appropriate physical volume by pressing the Select key.

10. Press the Enter key to confirm the selection.

11. Advance to the Logical volume TYPE field, type jfs (journaled file system).



12. Type the MAXIMUM NUMBER of LOGICAL PARTITIONS. The *maximum number* of logical partitions must be greater than or equal to the number of logical partitions entered in Step 6.

```
                                Add a Logical Volume

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

[MORE...11]                                                 [Entry Fields]
  Mirror Write Consistency?                                  yes                +
  Allocate each logical partition copy                       yes                +
    on a SEPARATE physical volume?
  RELOCATE the logical volume during                         yes                +
    reorganization?
  Logical volume LABEL                                      []
  MAXIMUM NUMBER of LOGICAL PARTITIONS                      [256]
  Enable BAD BLOCK relocation?                               yes                +
  SCHEDULING POLICY for writing logical                      parallel           +
    partition copies
  Enable WRITE VERIFY?                                       no                 +
  File containing ALLOCATION MAP                            []
  Stripe Size?                                              [Not Striped]      +
[BOTTOM]

F1=Help              F2=Refresh           F3=Cancel            F4=List
Esc+5=Reset          F6=Command           F7=Edit              F8=Image
F9=Shell             F10=Exit             Enter=Do
```

14. Select Stripe Size? and ensure that it is set to Not Striped. To change this, press the List key and select Not Striped from the displayed selections.

15. The Command Status screen displays, confirming that the command has been executed successfully.

```
                                COMMAND STATUS

Command: OK            stdout: yes           stderr: no

Before command completion, additional instructions may appear below.

mvelv000
```

- Each partition occupies 4 MB of disk space, unless AIX has been configured to use a non-standard partition size. The number of partitions multiplied by the partition size gives the total size of the logical volume.

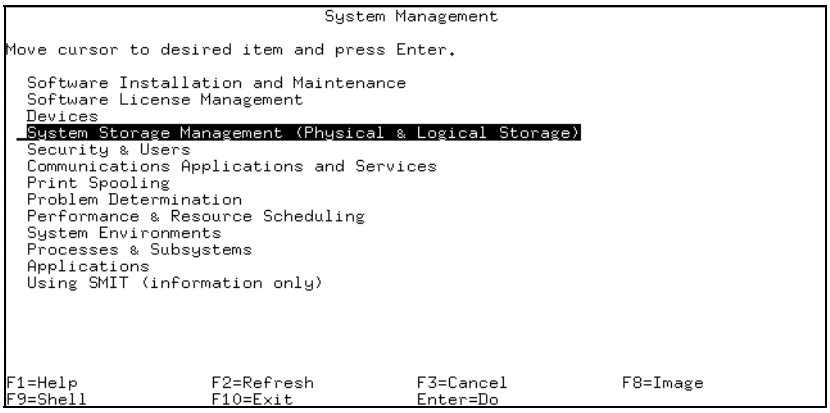
- The MAXIMUM NUMBER of LOGICAL PARTITIONS parameter dictates the maximum size to which this partition is allowed to grow.

NOTE: The journal file system (jfs) must be typed in. If you can't type the entry, try pressing the appropriate function key.

2.3.2 Create a File System to Store mvEnterprise Data

As a first time user, you also need to create a file system for the logical volumes to contain the AIX files where you are storing your mvEnterprise data.

1. Type **smit** from an AIX command shell**.** The System Management menu displays.



2. Select System Storage Management (Physical & Logical Storage). The System Storage Management menu displays.

3. Select File Systems. The File Systems menu displays.

4. Select Add/Change/Show/Delete File Systems. The Add/Change/Show/Delete File Systems menu displays.

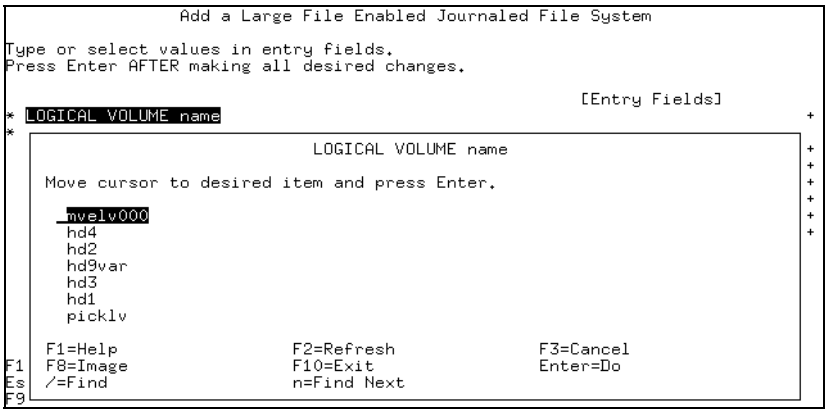
5. Select Journaled File Systems. The Journaled File Systems menu displays.

6. Select Add a Journaled File System on a Previously Defined Logical Volume. The Add a Journaled File System on a Previously Defined Logical Volume menu displays.

7. Select Add a Large File Enabled Journaled File System. The Add a Large File Enabled Journaled File System form displays.

8. Select the LOGICAL VOLUME name field, then press the List key to display the existing logical volumes. The LOGICAL VOLUME name window appears.

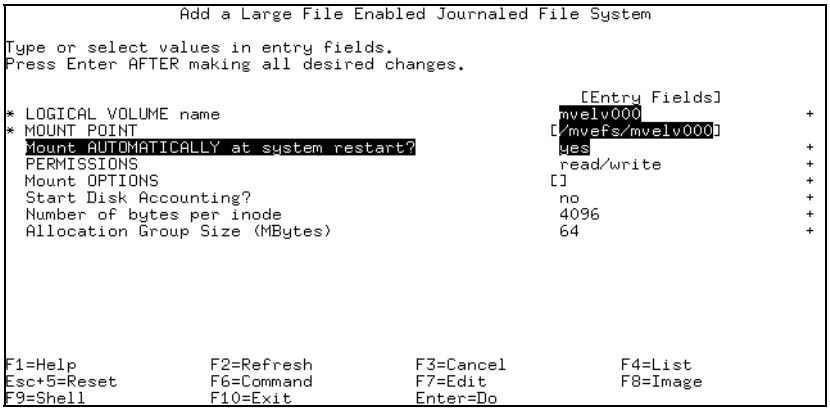
9. Select the appropriate logical volume and press Enter.



10. At the MOUNT POINT field, type the name of the directory on which the resulting file system is mounted. (Suggested; /mvefs/mvelv000, where ***mvefs*** is the subdirectory off the root directory which contains all the mount points for the mvEnterprise file systems, and ***mvelv000*** is the name given to the logical volume as exemplified in Step 5).

11. Select Mount AUTOMATICALLY at system restart?, then type

    yes



12. Press the Enter key to create the file system. The Command Status screen displays, confirming the successful addition of the file system.

```
                                COMMAND STATUS

Command: OK            stdout: yes           stderr: no

Before command completion, additional instructions may appear below.

Based on the parameters chosen, the new /mvefs/mvelv000 JFS file system
is limited to a maximum size of 134217728 (512 byte blocks)

New File System size is 1638400
```

2.3.3 Mounting the File System

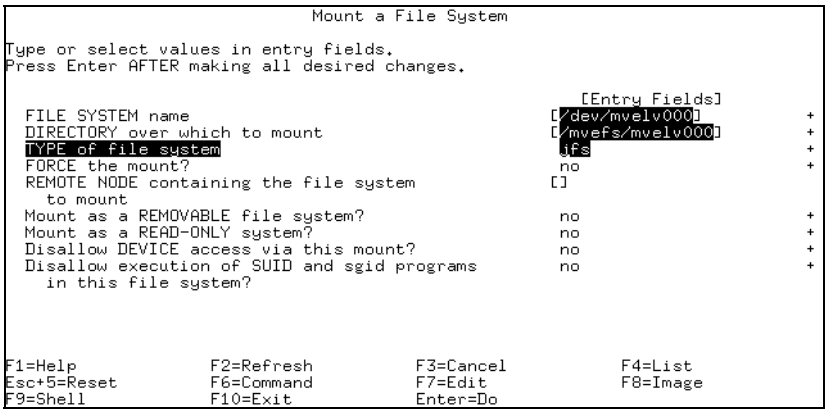
The newly created file system must be mounted before it can be used. The mounting process associates a file system with a directory, so that changing to the directory (via the AIX cd command) allows access to the file system after it has been mounted.

1. Type **smit** from an AIX command shell. The System Management menu displays.

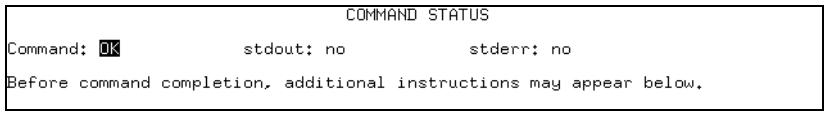
```
                                System Management

Move cursor to desired item and press Enter.

  Software Installation and Maintenance
  Software License Management
  Devices
  System Storage Management (Physical & Logical Storage)
  Security & Users
  Communications Applications and Services
  Print Spooling
  Problem Determination
  Performance & Resource Scheduling
  System Environments
  Processes & Subsystems
  Applications
  AIX System Diagnostics (ASD)
  Using SMIT (information only)



F1=Help             F2=Refresh          F3=Cancel           Esc+8=Image
Esc+9=Shell         Esc+0=Exit          Enter=Do
```

2. Select System Storage Management (Physical & Logical Storage). The System Storage Management menu displays.
3. Select File Systems. The File Systems menu displays.
4. Select Mount a File System. The Mount a File System form displays.
5. Select FILE SYSTEM name, then press the List key to display the existing file systems. Select the appropriate name and press Enter.
6. Select the DIRECTORY over which to mount field, then press the List key to display a window containing directories. Select the appropriate name and press Enter.

7. Select TYPE of file system, then press the List key to display the existing file system types. Select the appropriate type and press Enter.



8. Press the Enter key to mount the file system. The Command Status screen displays, confirming the successful mounting of the file system.



2.3.4 Create a Database to Store mvEnterprise Data

The config file is updated by the install program while it creates a database on the file systems, which were set up above. During the software installation, the install procedure prompts:

Enter initial data base names:

When done, type “end”.

In the above example, type **/mvefs/mvelv00/DB** where DB is a user selected name. It is recommended that the -i option (to initialize the database) be used with the install program. If multiple database files are to be created on the same file system, a unique name is needed for each of the DB files. In the example below, two database files are created:

0/mvefs/mvelv00/DB0

0/mvefs/mvelv02/DB1

end

After all database names have been entered, the install program displays the prompt:

PICK data space ‘DB0’ does not currently exist.

Do you wish to create this database (y/n)?

Respond **y**

How many frames in this data space[5000 minimum]?

If you are unsure on how many frames can fit in the file system, type **-1** (negative one). This creates DB0 to fill the file system to a maximum size of approximately 128 GB. The above prompts are repeated for each database file.

NOTE: The maximum size of each DB is just under 128 GB.

2.4 Configure the System to use Ethertape

2.4.1 Update the System to use Ethertape

For new installations, a system configuration file must be changed in order to use ethertape.

1. Ensure that you are logged in as root.
2. Edit the system configuration file. Type:

   vi /etc/pse.conf

3. Locate the appropriate headings, remove the comment symbol from these lines if necessary, and save the changes.

   # PSE communication protocols

   ```
   d+  xtiso    unixdg /dev/xti/unixdg # unix domain datagrams
   d+  xtiso    unixst  /dev/xti/unixst  # unix domain byte-stream
   d+  xtiso    udp     /dev/xti/udp     # UDP/IP
   d+  xtiso    tcp     /dev/xti/tcp     # TCP/IP
   ```

   # PSE modules

   ```
   m   timod                             # TLI module
   m   tirdwr                            # TLI read/write interface
   ```

4. Reboot the machine to implement the changes.

2.4.2 Update the /etc/hosts File

An alias for the PICK host must exist in the */etc/hosts* file for Ethernet connections to be established. In the example below, pickA (192.0.0.1) refers to the local machine and pickB (192.0.0.2) is the name of a remote machine:

The */etc/hosts* file on pickA

```
192.0.0.1       pickA pickhost

192.0.0.2       pickB
```

The */etc/hosts* file on pickB

```
192.0.0.2       pickB pickhost

192.0.0.1       pickA
```

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